

ENDANGERED WILDLIFE of California



State of California
The Resources Agency

DEPARTMENT OF FISH AND GAME

Sacramento, California

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ENDANGERED WILDLIFE of California

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Sacramento, California

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San Francisco, California
2006

FOREWORD

This booklet is published in response to an increased public interest in endangered species. The California Department of Fish and Game, which is responsible for the welfare of more than 1,000 species of fish and wildlife in the state, hopes this publication will stimulate the reader to join in the effort to protect endangered species.



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INTRODUCTION

In the long history of Planet Earth, many forms of life have come and gone. A survey of plants and animals that survive today is like reading one chapter in the middle of a book. There are hints of what has gone on before, and signs of what may happen in the future. But it is not the complete story.

We know from the study of fossils that Earth was a vastly different place in the past. Great seas once covered what is now desert. Huge dinosaurs ruled the land and giant winged creatures patrolled the skies. Glaciers came down from the north, carving giant valleys and whittling boulders into pebbles. All of this has changed, and in its unbelievably slow, steady pace, Earth continues to change. The creatures of Earth, totally dependent on their environment, have changed also. Those able to adapt to great climatic and geologic changes have survived. Others perished.

The monarch of the world today is man. His ability to alter his surroundings for his own benefit is unsurpassed by any other form of life which lives, or has ever lived, on this planet. His capacity to reason and to communicate appears to be unique and it has been said his ability to mourn the passing of another life form is something new under the sun.

Man-made changes

Man has altered his environment by building great cities, converting arid land to agriculture by irrigation, constructing highways, dams, shopping centers and sprawling housing projects. In so doing he has taken a hand at shaping the future of the world's plant and animal life. Subtle changes in climate and the land continue, but these are overshadowed by the abrupt and often traumatic changes made by man.

Plant and animal life has had some difficulty adapting to these sudden changes in the environment wrought by man. Since 1600, when accurate record-keeping began, more than 200 animal species have ceased to exist. The causes of their disappearances are varied, but nearly all are at least partially related to the activities of man.

This is a book about endangered species—animals which are likely to become extinct if something is not done. More specifically, it is about endangered species in California. We know of 25 such animals, ranging from the majestic bald eagle to the tiny blunt-nosed leopard

lizard. There are probably more, because our knowledge of the world around us is still limited.

To determine the status of a species, there are five questions which can be applied. If the answer is "yes" to any of the following questions, the species (or subspecies) under study can be considered endangered:

1. Does the mortality rate consistently exceed the birth rate?
2. Is the species unable to adapt to environmental change?
3. Is its habitat threatened by destruction or serious disturbance?
4. Does environmental pollution threaten its survival?
5. Is its survival threatened by the unwanted introduction of other species through predation, competition or disease?

The term "endangered species" is relatively new. In 1966, the International Union for Conservation of Nature met in Switzerland to publish the first list of rare and endangered animals. Prior to then, thoughtful men were able to stop the slaughter of buffalo, tule elk and other animals that were being wiped out by people who felt nature was an infinite resource. Other creatures, like the passenger pigeon, did not fare so well. They were extinct before most people had time to miss them.

We, the people, are still in the process of considering the consequences of making a particular animal extinct. We don't really know what effect the passing of the leopard lizard, for example, would have on the rest of the world. Most of us, living in an urbanized society, have never seen an endangered species. So why should we care?

Why save endangered species?

An argument for protecting endangered species is based on the "web of life." All plant and animal life is interconnected in complex ways which man does not yet fully understand. Some people believe that to remove one or more of the links in the web of life is to threaten the entire system. Others argue that by the time an animal reaches the point of being endangered, it no longer has a significant part in interdependent relationships we call an ecosystem.

Another argument for endangered species is based on the potential value of animals and plants in medical, agricultural and industrial operations. Many benefits have been realized and others no doubt will be found in the future.

A growing number of people support the preservation of endan-

gered species because they feel that wildlife in its natural habitats adds to the quality of human life. Biologists tell us that the health of wild animals is a good indicator of the health of the ecosystem. Even man needs a healthy planet on which to live.

Indeed, the quality of life may be better because we are able to see deer running through the forest and hawks gliding in circles above the land. But not everyone has an opportunity to see the deer and the hawk. Few will ever see a bald eagle or a peregrine falcon. For many of us, unfortunately, quality of life has nothing to do with nature.

There is also the notion that we have an ethical commitment to other forms of life. Even if a given species of animal has no value to humankind, it should be conserved because it exists. In fact, it may have existed before the coming of man.

Current governmental policy in this country and others is to protect rather than to deliberately make any species extinct. Human beings definitely have the ability to eliminate a species forever.

The grizzly bear, the jaguar and the wolf are now extinct in California. The California condor is nearly gone and the blunt-nosed leopard lizard is fighting for survival.

The importance of habitat

Perhaps the best action which can be taken to ensure survival of a species is to protect its habitat. Without suitable living space, no animal can survive. To preserve at least some of the land in its natural state, the California Department of Fish and Game and other public agencies have been purchasing parcels throughout the state. The establishment of ecological reserves does much to assure wildlife survival, especially in areas of critical habitat which are important to the survival of rare and endangered species.

Funding for work on endangered species comes from a variety of sources. Revenue from personalized license plates, special appropriations from the legislature, federal grants, and public donations have been spent on projects to help endangered species.

There is much work to be done. With continuing public interest and support, the state and private interests will work together in providing protection for all wildlife and in conserving habitat essential to the survival of endangered species in California. This will be our contribution to the concept of Planet Earth as a place where all life forms may exist in concert, if not always in harmony.

MORRO BAY KANGAROO RAT

Dipodomys heermanni morroensis



Description

The Morro Bay kangaroo rat is distinct from the many kangaroo rats found in the desert and arid areas of California.

Kangaroo rats are so named because they hop about in the manner of a kangaroo. They are brown and white in color, have large hind feet, small front feet and an extremely long tail. Dark coloration and lack of a complete white hip stripe distinguish the Morro Bay kangaroo rat from other subspecies of kangaroo rats.

Distribution

The Morro Bay kangaroo rat, as its name suggests, lives at the south end of Morro Bay in San Luis Obispo County. Its habitat is a coastal shrub plant community of sandy open spaces, in which it burrows and forages for food.

Life History

Kangaroo rats, like many small mammals, remain underground during the day and come out at night. Frequently, they can be seen scurrying across the road as one drives through the desert areas at night. The presence of Morro Bay kangaroo rat is best determined by finding active burrows, and by tracks and tail markings in sandy pathways.

Normally, three or four young are born in May or June. In some years, the Morro Bay kangaroo rat has two litters. Kangaroo rats feed largely on seeds, which they collect and put in pouches along either side of their jaws and then store in caches surrounding their burrows until food is needed. They are preyed upon by a number of natural enemies including foxes, bobcats, snakes and owls. Of special threat to the Morro Bay kangaroo rat are house cats, which are increasing in numbers as they arrive with families occupying new houses built near the remaining kangaroo rat habitat.

Status

The Morro Bay kangaroo rat is one of the most endangered species in California. The rapid growth of the cities of Baywood Park and Los Osos is destroying the habitat essential to the survival of this species.

Efforts are being made to acquire and set aside within Montana de Oro State Park sufficient habitat to assure survival of the Morro Bay kangaroo rat. Critical habitat bordering the state park has been purchased by the Department of Fish and Game and established as a reserve for the Morro Bay kangaroo rat.

SALT MARSH HARVEST MOUSE

Reithrodontomys raviventris



Description

The salt marsh harvest mouse is a unique little rodent the size of a house mouse. It can be distinguished by its beautiful reddish colored hair, bicolored tail and grooved incisors.

Distribution

While harvest mice are not uncommon in California, the salt marsh harvest mouse is found only in salt marshes bordering San Francisco Bay. In many areas along the bay this habitat is found only as narrow bands of salt marsh.

Life History

The salt marsh harvest mouse is the only rodent which spends its entire life in a salt marsh. It evolved to subsist on highly salt-tolerant plants, to drink salt water, and to exist in a hostile environment influenced by tides. Here, in dense pickleweed and cordgrass, the salt marsh harvest mouse has existed, reproduced, and met its life needs without evolving into a truly aquatic mammal as have other rodents such as the beaver and muskrat.

Like most small rodents, this harvest mouse has an extended breeding season. Three or four young comprise a normal litter and are cared

for by the female until they leave the nest in a few weeks. Natural enemies include whitetailed kites, marsh hawks, owls and herons.

Status

Continual destruction of salt marshes by land fill and diking are major factors contributing to decline of this species. However, recent acquisitions of tidelands by U.S. Fish and Wildlife Service, California Department of Fish and Game, City of Palo Alto, and independent conservation organizations are insuring its continued survival.

Preservation of existing salt marshes bordering San Francisco Bay and mangement of these through normal tidal flows are the keys to the survival of the salt marsh harvest mouse.

CALIFORNIA CONDOR

Gymnogyps californianus



Description

The California condor is the largest soaring land bird in North America. An adult may have a wing span of nine to nine and one half feet and may weigh more than 20 pounds. The adult condor is distinguished from the turkey vulture and golden eagle by the white triangular shaped patch under each wing and its bare orange head.

Distribution

Once present in much of western North America, the California condor is now largely confined to the rugged mountains surrounding the southern end of the San Joaquin Valley in California. During the summer condors range northward into the Sierra Nevada foothills and the coast range. There have been unconfirmed reports of condors being seen in Baja California, Mexico.

Life History

The California condor is a relic of the ice age, probably never very numerous. Their numbers are dwindling slowly to a point of near-extinction. While condors live as long as 45 years, they have an extremely low reproductive rate. They mature at five to six years and are thought to mate for life.

In early February a nest site is selected on a remote cliff. The female lays a pale green egg which is incubated for 42 days. It is five to seven months before the young bird is fledged and even then it depends on its parents for food for another five to seven months. Because of the long period of incubation and parental care of the young, a pair of condors normally nest only every other year.

Like other vultures, condors eat carrion. They feed chiefly on dead livestock, deer, and even ground squirrels which they search out by flying long distances from preferred roosting sites. An unforgettable sight is an effortlessly soaring condor, riding the thermal currents, as it must have done long before man trespassed on its territory.

Status

Unfortunately, the California condor appears incapable now of producing a sufficient number of young to maintain even its present population of less than 30 birds. Scientists feel that four to six young birds must fledge each year in order for the condor to survive. Current production is less than two birds each year.

Considerable effort has been devoted to preserving the condor. Important nesting and roosting areas have been acquired or set aside in condor sanctuaries through the cooperative efforts of the U. S. Fish and Wildlife Service, U. S. Forest Service, California Department of Fish and Game, and National Audubon Society. U. S. Forest Service regulations protect known nest sites and areas of condor concentrations from human disturbance and discharge of firearms. Condors may have to be bred in captivity to assure continued survival and to produce young which can be returned to the wild.

AMERICAN PEREGRINE FALCON

Falco peregrinus anatum



Description

The peregrine falcon, or duck hawk, is a member of the falcon family. It is larger than the familiar American kestrel or sparrow hawk, having a wing span of slightly more than three feet. The adult has slate-gray upper body feathers, narrow barring on the belly, breast and flanks, and black cap and cheek patches, which distinguish it from other hawks, including its close relative, the prairie falcon. While in flight, peregrine falcons can be identified by their wing beats and pointed wings.

Distribution

The American peregrine falcon is one of three races, or subspecies, native to North America. No longer breeding east of the Rocky Mountains, its numbers also are severely reduced in the western states. In California, peregrines occur seasonally throughout the state but are seen most commonly along the coast, in the Central Valley and in surrounding mountains. In 1979, 21 pairs of peregrine falcons were known to have nested in California.

Life History

The peregrine falcon can fly at great speeds, often reaching 175 miles per hour in a stoop, or dive. It feeds primarily on birds ranging in size from a small warbler to a mallard duck. Observing a peregrine falcon chasing a teal or a shorebird can be a dramatic experience.

Peregrines mate for life. They return each year to the same nest site, or eyrie, on a rocky cliff. One such site is Morro Rock, overlooking Morro Bay in San Luis Obispo County. This is the only place in North America where nesting peregrines can be viewed from a parking lot! Morro Rock has been declared an ecological reserve for the peregrine falcon, and the area has been posted to prohibit public access.

Nesting activity begins in early February and by April the female has laid two to four eggs. The eggs hatch in 28 to 31 days and the young fledge in four to four and one-half weeks. During this time, the adult male is busy hunting and bringing food to the female and young. Upon fledging, the young birds are closely attended by their parents who teach them to hunt and care for themselves.

Status

The American peregrine falcon is one of the most endangered species. The decline in its numbers since the 1940's has been attributed to reproductive failure caused by the widespread use of the pesticide DDT. The peregrine falcon, like the California brown pelican, has experienced a noticeable increase in reproduction since DDT was banned in 1971. Unscrupulous hunters, illegal falconers, and loss of nesting areas continue to threaten the recovery of the peregrine falcon in California.

Surveillance of active peregrine falcon eyries is conducted each year to assess reproductive success. Critical habitat areas are being determined and management plans developed to provide added protection. Captive rearing of the species and introduction of young birds to the wild is aiding in the recovery of peregrine falcons.

BALD EAGLE

Haliaeetus Leucocephalus



Description

The bald eagle is our national bird and, next to the American flag, our best known national symbol. Except for the California condor, the bald eagle is the largest bird of prey in California, with a wing span of six and one-half to eight feet. An adult is readily identified by its brownish-black body, white head and tail and large yellow hooked bill. Unlike the golden eagle, the bald eagle's legs are not feathered all the way to its feet.

Distribution

The bald eagle is found year-round in California. For most of the year, nesting birds occupy well-defined territories. Most of these nesting sites are located in northern California and are found near large streams, lakes and reservoirs. Bald eagles once nested on the Channel Islands off California's southern coast. During the winter months large numbers of bald eagles migrate from the north and can be found over much of the state.

Life History

Bald eagles are long-lived and mate for life. Their courtship occurs in mid-winter. The bald eagle's nest—a massive stick platform in trees 20 to 90 feet high—is used year after year. One to three white eggs are laid from mid-February to April and are hatched in 35 days. Both parents assist in incubating and caring for young which leave the nest in eight to ten weeks.

Bald eagles feed mainly on fish, often boldly taken from other raptors such as the osprey. Bald eagles can be seen in late winter congregated about streams and rivers feeding on salmon which have died after spawning. Kokanee salmon found in some inland lakes of California are an important food source. Bald eagles also feed on waterfowl, rabbits and deer and livestock, which is mostly in the form of carrion. Eagles feeding on road-killed animals are often struck and killed by motor vehicles.

Status

California's resident bald eagles number about 50 pairs, with a winter population in excess of 500 birds. In 1979, there were 41 nests occupied by bald eagles producing about one chick per active site. Scientists feel that unless improved reproduction and survival of young birds occurs, the bald eagle will become extinct.

Surveillance of nesting bald eagles is conducted each year to determine where eagles are nesting and how many young have been produced. Management plans provide for protection of these nest sites during the nesting period.

CALIFORNIA BROWN PELICAN

Pelecanus occidentalis californicus



Description

The brown pelican can be easily recognized by anyone who visits California's coast in the summer. It is the only large grayish-brown coastal bird with a large pouched bill. It has a wingspread of 90 inches. Adults have white heads but the immatures are dark-headed. It flies with its head folded back on its neck and shoulders, alternately flapping its wings and sailing. When feeding, this interesting bird folds its wings and plummets into the water after fish, its principal food item.

Distribution

The California brown pelican ranges along the Pacific Coast from Mexico to Canada in the summer. Some move as far north as British Columbia in summer and fall, but most of the birds remain in Mexico. About 20,000 frequent California's coast from July through November. About 100,000 birds are found in the west coast population.

Life History

With the exception of a small colony on West Anacapa Island off Ventura, California brown pelicans nest on the Mexican coastal islands off Baja California and in the Sea of Cortez. Huge colonies of pelicans congregate and nest on these remote islands, historically free of human disturbance. Breeding commences as early as December in the southernmost colony.

Pelicans construct large stick platforms in which they lay three to four eggs. Both parents assist in caring for the young and spend many hours foraging for fish, mostly anchovies, to feed their young. After eight to 10 weeks, the young leave their nest and accompany their parents to nearby fishing areas or north along the Pacific Coast.

Pelicans from Mexico begin to appear along the California coast in late June, congregating in bays and protected areas along the shore, or at good fishing sites.

Status

The California brown pelican was declared as endangered because the Anacapa Island colony was incapable of reproducing. A 1970 study showed there had been 552 nesting attempts with only one young produced. Pelicans were found to be laying thin-shelled eggs which collapsed during incubation. Scientists attributed this to the contamination of the food supply with DDT pesticide. Recent banning of DDT used in the United States and curtailment of industrial discharge of DDT into the ocean has resulted in improved reproduction.

The colonies in Mexico appear to be nesting normally. However, an increase in the number of tourists attracted to remote islands in the Sea of Cortez could lead to destruction of these colonies.

Continued curtailment of the use of DDT should result in recovery of the Anacapa Island colony. Closure of this island and of breeding places in Mexico to human activity during the nesting season may be necessary to restore the California brown pelican to nonendangered status.

CALIFORNIA LEAST TERN

Sterna albifrons browni



Description

The smallest of the terns, this nine inch long bird is recognized by its white body, gray wings, black wing tips, white forked tail and yellow legs. In breeding plumage, the white forehead contrasts with the black cap on the head and the bird's yellow bill has a black tip. These markings, the four-part call of the birds at the breeding colony and the rapid wing-beat distinguish it from other terns in California.

Distribution

From April to September the least tern can be found along the Pacific coast from San Francisco Bay to central Baja California, Mexico. There are no reliable estimates of the former total population of the California least tern, but in 1915 an estimated 1,000 pairs nested along a three-mile stretch of beach in San Diego. In recent years their numbers have declined to where they nest at about 29 sites from San Francisco Bay to the Mexican border. Wintering areas are not known although it is believed they frequent the coastal areas of Central and South America.

Life History

The adults arrive in California on their breeding grounds in April

and breed in loose colonies. Terns tend to choose a sandy flat area with little or no vegetation. The colony nests near a lagoon or estuary that provides a small fish food supply. Once a school of small fish—such as anchovy, top smelt, shiner perch or killifish—is found, terns hover a moment and dive into the water, rising quickly with their prey.

Birds usually lay two or three eggs in a shallow depression in the sand. Eggs are buffy in color and are splotched with irregular shaped purplish and brownish markings blending with the sand, making them difficult to find. An incubation period of about 20 to 25 days begins with the laying of the first egg. By the second day after hatching, the chicks leave the nest and wander freely through the tern colony. Parent birds are busy bringing fish to the young even after they take to the air at about three weeks of age. At this time the young start to learn the art of flying and catching their own food. Birds leave the California coast by September and migrate south to their wintering grounds.

Status

The California least tern was declared as endangered because of continuing destruction of few remaining feeding and nesting habitats, and human disturbance and animal predation. About 29 colonies have nested in recent years in California. Statewide breeding population was estimated at 950 pairs in 1979. About 80 percent of nesting occurs in San Diego County.

Critical nesting and foraging habitats need continued protection and nesting sites may need to be placed in public ownership to control human activity during the nesting season. Annual population surveys are conducted to determine population trends, develop management plans for essential habitats and implement the California Least Tern Recovery Plan.

CALIFORNIA CLAPPER RAIL

Rallus longirostris obsoletus



Description

The California clapper rail is a secretive marsh bird and is seldom seen far from salt marshes. Like all rails, it is built so that it can slip through marsh vegetation. It seldom is seen flying, but when flushed out, it flies awkwardly to a landing a short distance away and disappears into the thick cover. Largest of the rails in California, the California clapper rail is hen-sized and has a long bill. It is brown or cinnamon in color and has barred flanks and an upturned tail.

Distribution

The California clapper rail is a resident of the salt marshes of San Francisco Bay, San Pablo Bay, Napa Marsh and Elkhorn Slough, and is a casual visitor to Bolinas and Tomales Bays. It has also been observed at Humboldt Bay and on South Farallon Island.

Life History

This rail's habitat is the tidal marshes that are characterized by pickleweed and cordgrass. Here the rail finds an abundance of food in the form of crabs, clams and other small crustaceans. Nesting occurs from March through June, in nests constructed in thick vegetation. The female lays six to 10 eggs which hatch in 23 to 29 days. During periods of high tides, California clapper rails are flushed from cover and are found roosting in driftwood and debris. They are most easily located at these times and are located at other times by their distinct chattering calls.

Status

The California clapper rail is listed as endangered by the California Fish and Game Commission and by the Secretary of the Interior. This bird is highly specialized and apparently incapable of adapting to environmental change. Major populations occur in the salt marshes of south San Francisco Bay and Napa Marsh. Smaller populations exist in San Pablo Bay and Elkhorn Slough. The rail is absent as a breeder from Suisun Marsh and other brackish marshes along the north and central coasts. Marsh reclamation, industrial pollution, and the introduced old-world rat are all threatening this rail.

State and federal laws prohibit the take, possession, and sale of California clapper rails. Key habitat areas in San Francisco and San Pablo bays have been preserved by the State of California, U.S. Fish and Wildlife Service, National Audubon Society, Nature Conservancy, and the City of Palo Alto. The Department of Fish and Game conducts annual surveys of clapper rail density and distribution.

LIGHT-FOOTED CLAPPER RAIL

Rallus longirostris levipes



Description

The light-footed clapper rail is one of three races of the clapper rail found in California. Like other clapper rails it is a secretive hen-like marsh bird and is found in the salt marshes along the coast of southern California. It is brown or cinnamon in color and has barred flanks, a short upturned tail and a long bill. This sub-species is slightly darker than the other races. This is the largest rail found within its range, about the size of an American coot.

Distribution

The light-footed clapper rail is a resident of the coastal salt marshes from Goleta Slough, Santa Barbara County, south to San Quintin Bay, Baja California, Mexico. Breeding populations are limited to 12 sites in suitable tidal marshes along the California coast.

Life History

Like the California clapper rail this race is associated with tidal marshes that are characterized by pickleweed and cordgrass. They feed on shore crabs and other invetebrates. The nest is a bowl of grasses fashioned in locations above the high tide level. Six to 10 eggs are laid, buffy in color and spotted. Frequently, during periods of high tides, this bird will be found roosting on driftwood and debris. Their presence may also be detected by their distinctive call, a series of loud clattering "kek" notes.

Status

This rail is listed as endangered by the California Fish and Game Commission and by the Secretary of Interior. Reductions in its population are attributed to loss of habitat. At present there are approximately 8,500 acres of salt marsh habitat, as compared to an estimated 26,000 acres which once existed between Santa Barbara County and the Mexican border. Many of the salt marshes are threatened by developments that will reduce or destroy local rail populations. The total population of light-footed clapper rails in California was estimated to be approximately 250 birds in 1976.

The light-footed clapper rail is protected under state and federal laws. Key habitat in Upper Newport Bay, Bolsa Bay, Mission Bay and Tijuana River marshes has been placed in public ownership. Other coastal wetland areas are being acquired as ecological reserves. A recovery team has been established to develop and implement a plant to restore this rail to nonendangered status.

BELDING'S SAVANNAH SPARROW

Passerculus sandwichensis beldingi



Description

This brown streaked sparrow has a short yellowish stripe above and in front of the eyes, a short notched tail, pink legs and a streaked breast. A subspecies of the savannah sparrow, it is distinguished from others by its smaller size, overall darker color, lack of distinct crown stripe, heavy streaking on the throat, breast and sides and its restricted distribution.

Distribution

The Belding's savannah sparrow lives in tidal estuaries from Goleta, California, to El Rosario, Baja California, Mexico. It is closely associated with pickleweed habitat, subject to tidal influence.

Life History

The Belding's savannah sparrow nests along the ocean coastline, where plants are wet only by high spring tides and inundated only by

storm tides. Nesting activities start in March. Nests are constructed from pickleweed twigs on the ground or in low branches of dense pickleweed. A clutch of three or four eggs is laid in early April. Incubation time is estimated to be 10–13 days. Females may raise several broods in a season.

Their diet is varied and consists of small marine invertebrates, insects, seeds and tender parts of pickleweed. This subspecies is not migratory and during the nonbreeding season the birds disperse daily to feeding areas, returning to roost at night in the breeding territory.

Status

This sparrow is listed as endangered by the California Fish and Game Commission. Developments which are destroying California coastal salt marsh habitats threaten its survival. Approximately 1,610 pairs of birds were found breeding at 28 breeding sites in southern California in 1977.

State law prohibits the take, possession and sale of the Belding's savannah sparrow. Some key habitats have been acquired to preserve this and other endangered species. Additional areas may need to be acquired in public ownership to assure preservation of this endangered species.

BLUNT-NOSED LEOPARD LIZARD

Gambelia silus



Description

The blunt-nosed leopard lizard is a robust creature, with a long, round tail and a snout that is short and blunt when compared with the common leopard lizard (*G. wislizenii*). It can grow to five inches long, not including the tail. This lizard has gray or brown coloration above with whitish crossbars on the back and tail. Dark, leopard-like spots are on the back, sides and tail. The undersides are whitish or yellowish, with dusky spots on the throat. Breeding females have orange or red spots on their sides and under the tail.

Distribution

This lizard's original territory was the San Joaquin Valley and surrounding hills, ranging from about San Joaquin County south to Kern County, including the Carrizo Plain in eastern San Luis Obispo County. Today, it is found in scattered locations in the San Joaquin valley from Merced County to Kern County and in the foothills along the valley's western edge, including the Carrizo Plain and Cuyama Valley.

The lizards live in grasslands with sparse vegetation, alkali flats, low foothills, canyon floors, large washes and arroyos. They are absent or scarce in areas of tall grass or dense shrub. Sandy soil is their

preference, although the lizards also are found in coarse, gravelly soil and hardpan.

Life History

The blunt-nosed leopard lizard is an active daylight hunter, feeding on locusts, cicadas and small lizards. Most of its surface activity occurs when air temperatures are 80 to 105 F. It uses small mammal burrows for shelter and to escape its enemies, which include shrikes, owls, kestrels, roadrunners, spotted skunks and coyotes.

After mating, the female lays two to three eggs in an underground chamber at the end of a burrow, usually from early June to mid-July. The eggs take about two months to hatch and young lizards usually can be seen by early August. Young lizards and some adults may remain active above ground into October, depending upon the climate. The cold winter months are spent underground in mammal burrows.

Status

The original range of the blunt-nosed leopard lizard was quite extensive. However, agricultural development in the San Joaquin Valley has reduced the native habitat to a fraction of what it once was. Recent studies have indicated that this lizard requires large areas of unaltered land in order to sustain viable populations. The species will continue to be threatened as agriculture and subdivisions claim more land. Off-road vehicles also are damaging lizard habitat in some foothill areas. Some natural lizard habitat remains in a near-natural condition on the Naval Petroleum Reserve near Taft and on the Kern-Pixley National Wildlife Refuges.

Management

Large areas of prime habitat need to be protected wherever possible. Efforts are being made to acquire property in the San Joaquin Valley with habitat suitable for the preservation of the blunt-nosed leopard lizard.

SAN FRANCISCO GARTER SNAKE

Thamnophis sirtalis tetrataenia



Description

This is one of the most strikingly beautiful snakes of North America. The top of the head is red. There is a wide stripe on the back of greenish-yellow edged with black, and broad red stripes on each side bordered with black. The red stripe may be broken or divided anywhere along the body. The ventral side is turquoise blue. Adult females grow to about four feet.

Distribution

The San Francisco garter snake is found from northern San Mateo County south along the east slope of the Santa Cruz Mountains to the Santa Clara County line, and along the coast west of this region south to Point Año Nuevo. It is found most commonly in vegetation that borders ponds and lakes. Marshy areas with good cover are especially favored.

Life History

The San Francisco garter snake is active throughout the year except during periods of cold weather. It breeds in the early spring and the females bear live young in late summer. The San Francisco garter snake is usually found in the vicinity of permanent water, although vernal ponds may be frequented in the spring. Its favorite food is frogs, although fish may also be eaten.

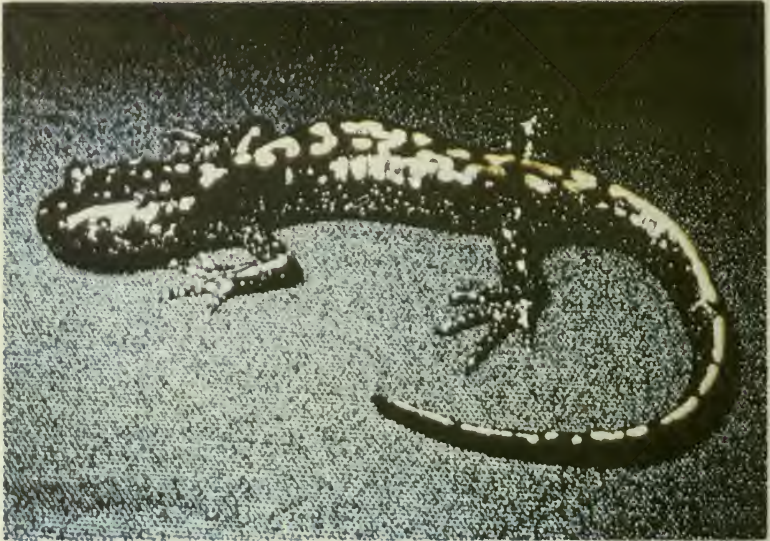
Status

Fewer than 20 populations of this snake are known to exist. Most populations are composed of less than 50 adults, and there is high mortality in newborn young. The snake was formerly abundant at a few ponds near Daly City, but housing construction has eliminated these populations. Less than five percent of the present habitat is on protected land.

The San Francisco garter snake occurs on land owned by the city and county of San Francisco and on some state park land. Most of the best habitat, though, is on private land. Successful management of this snake will require protecting additional land and keeping the habitat in a natural (wild) condition.

SANTA CRUZ LONG-TOED SALAMANDER

Ambystoma macrodactylum croceum



Description

The Santa Cruz long-toed salamander grows to about five inches and has relatively long, tapered toes. This salamander is shiny black, with an irregular pattern of metallic orange to yellow-gold blotches along the back.

Distribution

Three sites in Santa Cruz County and two in Monterey County are the only areas known at present to support populations of this species. They are found in ponds during the winter and spring and in nearby oak-chaparral woodlands during the remainder of the year.

Life History

Adult Santa Cruz long-toed salamanders spend most of their lives under leaf litter or in mammal burrows. Their diet includes isopods, beetles, centipedes, earthworms and spiders.

At night, during the rainy season, adults migrate to temporary ponds where they breed. Males usually arrive first, followed closely by the females. The salamanders mate, lay their eggs, then return to the wooded areas. The eggs usually are deposited singly and are attached to submerged aquatic plants. The eggs hatch in about a week and the larvae develop in three to four months. Larvae feed mainly on aquatic invertebrates.

Metamorphosis will not occur until the larvae are at least one and one-quarter inches long. However, drying of the ponds will speed up metamorphosis. Young salamanders move into nearby woodlands after metamorphosis, or seek refuge under vegetation or in cracks at the bottom of the drying pond.

Status

The temporary ponds required by this species for reproduction have been threatened by home building, highway construction and drainage projects. The California Department of Fish and Game and the U.S. Fish and Wildlife Service have purchased habitat at two sites in Santa Cruz County to manage as preserves for the salamander. The California Department of Transportation has begun a project to rehabilitate a pond area damaged by previous highway construction.

DESERT SLENDER SALAMANDER

Batrachoseps aridus



Description

The desert slender salamander can be distinguished from other slender salamanders by its shorter tail. It is a small creature, growing to a maximum length of approximately four inches. The back of the desert slender salamander is blackish-maroon, overlaid by an indistinct lighter band. The underside of the trunk is darker black-maroon. The underside of the tail is flesh colored.

Distribution

This salamander was not discovered until 1969. It is restricted to Hidden Palm Canyon, south of Palm Desert in Riverside County. It is found along the base of cliffs in the canyon, where continuous water seepage occurs. The salamanders seek cover in crevices and under slabs of limestone and other rocks.

Life History

The desert slender salamander is completely terrestrial. It can be found on the surface of the ground only during late winter and early spring under dirt clods, rocks and other objects on the canyon floor. During dry, hot weather, the salamanders retreat underground to avoid dehydration.

Status

Searches in other areas around Hidden Palm Canyon have failed to turn up any desert slender salamanders. It most likely occurs only in that one location. The salamander population is maintained by a continuous flow of groundwater that keeps the soil moist. Destruction of the salamander's habitat, either by loss of the limestone sheeting, pollution or reduction of the groundwater supply would seriously endanger the population.

A desert slender salamander reserve of 134.5 acres is managed by the California Department of Fish and Game. Ground water pumping and septic tank construction that would alter quantity or quality of the water flow in the salamander habitat must be restricted. The salamander's requirements for reproduction, food and population maintenance are being studied.

COLORADO SQUAWFISH

Ptychocheilus lucius



Description

The Colorado squawfish is the largest minnow in the world. A slender, pike-like fish, it has been reported to reach lengths of more than six feet and a weight of 80 pounds. The head may make up one-quarter the total body length. Its color is bronze to olive, gradually changing to silver underneath.

Distribution

They are found primarily in slow, deep, river water. Originally found throughout the Colorado River system, Colorado squawfish today are restricted to the Green River in Wyoming and the Yampa River in Utah and Colorado. This squawfish is probably extirpated from the California portion of the Colorado River.

Life History

Colorado squawfish are predatory fish, existing on aquatic insects

when young and becoming more and more dependent on other fish after they reach a length of approximately four inches. Beyond eight inches, they eat only fish.

Squawfish achieve sexual maturity when five to seven years old. At this stage they are approximately 13–18 inches long. Spawning takes place in the spring when waters are above 64 F. Exact details of spawning behavior and locations are unknown. It is assumed to occur in areas of deep moving water. The eggs adhere to rocks.

Status

At one time the Colorado River was warm and muddy, but construction of several dams along the river has changed the original system. The river is now cold and contains several clear, deep and slow-moving areas. The dams prohibit fish from migrating up and downstream, and the cooler water may inhibit successful reproduction. These changes have probably also decreased the numbers of fish which are eaten by the squawfish as well.

The U.S. Fish and Wildlife Service and state fish and game departments from California and Arizona, are working together to develop an artificial rearing program in the hope of re-establishing a population in the lower Colorado River. Studies also are underway to determine the habitat requirements of this uniquely adapted species.

THICKTAIL CHUB

Gila crassicauda



Description

Another species not likely to be seen again is the thicktail chub. It derives its name from the thickened area (caudal peduncle) in front of the tail fin. This stocky fish has large scales and a V-shaped head. Color ranges from greenish brown to purplish black on the back, to yellowish on the sides and belly. It grows to a length of about 12 inches.

Distribution

The thicktail chub once occurred throughout the lowland areas of the great Central Valley, in streams flowing into San Francisco Bay, and in the Clear Lake system. It disappeared from Clear Lake around 1940 and the last specimen to have been collected in California was in 1957 near Rio Vista. It may be extinct today.

Life History

Little was ever known about this fish. It was probably carnivorous, feeding on fish and large aquatic invertebrates. At one time it must have been plentiful, for it was the third most common fish species found in the middens of Indian settlements in the Central Valley. It was also sold in the San Francisco fish market around the turn of the century.

Status

The thicktail chub is probably extinct. It may be possible yet to discover a remnant population in some backwater area of the Delta, but samples of this unique species now exist only in museum bottles.

The draining and filling of lowland marshes, agricultural development, water diversion and the introduction of non-native species of fish have probably all contributed to the chub's demise.

TECOPA PUPFISH

Cyprinodon nevadensis calidae



Description

The dorsal fin of the Tecopa pupfish is closer to the tail than to the head. The pelvic fins have six rays but the fins are small and occasionally missing. When in breeding condition, males are bright blue with a black band at the end of the tail. Females may have from six to 10 vertical stripes. These pupfish are scarcely more than an inch long.

Distribution

This fish was originally found only in the outflows of North and South Tecopa Hot Springs and associated ditches in southern Inyo County. Recent field studies have not located any Tecopa pupfish within their original range.

Life History

The fish survive in waters as warm as 108 F. Blue-green algae seems to be the main food of this fish, however they are also known to take

small invertebrates such as mosquito larvae. Pupfish can produce from two to 10 generations a year, depending on the temperature of the water.

Status

Although still listed as an endangered species, the Tecopa pupfish may already be extinct. None has been found during recent field studies. Agricultural and recreational development of the Tecopa Hot Springs and neighboring land has eliminated the fish from the springs themselves. There may still be some populations in the vicinity, which have not yet been discovered.

BONYTAIL CHUB

Gila elegans



Description

Bonytail are a large species of chub that belong to the minnow family (Cyprinidae). They are now rarely seen in California, but if one is encountered it can be readily identified by the extremely long and narrow tail stock (caudal peduncle) and the deeply-forked tail. A large hump is usually present behind the small flattened head. The eyes are small and elliptical. The body is covered with small scales, usually embedded in the body surface. Young fish do not resemble the adults.

Distribution

Bonytails were once common in the larger tributaries of the Colorado River system. Most fish have been collected only from pools and back eddies, but their body shape may be an adaptation that enables them to withstand turbulent flows, to frequent faster waters for feeding purposes, or to undertake spawning migrations. The water in which they are found is usually muddy, with clay, mud, silt, or boulders on the bottom.

Life History

Adult bonytail eat insects, algae, and floating plant debris. Young bonytail consume aquatic insect larvae, gradually switching over to

surface food as they grow. Spawning takes place once water temperatures exceed 64 F, usually in May and June. Spawning areas are characteristically gravel riffles or rubble-bottomed eddies.

Status

This fish is extremely rare, if not extinct, in the California portion of the Colorado River because access to upstream spawning areas has been blocked by dams and no suitable spawning habitat remains in the California portion of the river. Bonytail are still present in the upper reaches of the Colorado River system, where suitable spawning habitat remains, but they are unable to move downstream under present conditions. Future survival for this species is dependent upon maintaining sufficient water flows in these upstream areas.

HUMPBACK (RAZORBACK) SUCKER

Xyrauchen texanus



Description

The most obvious feature of this species is a pronounced hump along the back in front of the dorsal fin. Other features show typical sucker characteristics. For example, the mouths have few papillae (pimple-like structures), and the lips are divided by a mid-line cleft. These suckers can grow to two feet long and weigh 10 pounds. They range from dusky brown to olive-colored on the back and yellow-orange on the belly.

Distribution

This species is found through most of the Colorado River system, but only in the main portion of the river in California. They are generally associated with sand, mud and rock bottoms in areas of sparse aquatic vegetation.

Life History

These suckers feed on algae and detritus scoured from stream bottom rocks and sediments. The breeding season lasts from March to May when water temperatures are 55 to 65 F.

This species displays an elaborate circular courtship "dance". Usually two or more males initiate a counter-clockwise circular swimming motion accompanying a single female. The males nudge the female's abdomen with their snouts attempting to induce discharge of the eggs. This swimming activity may become so rapid and intense that bottom sediments are stirred up, making the water cloudy. The final convulsive moment results in simultaneous discharge of eggs and sperm. The swimming activity immediately ceases and sometimes the participants may catapult into the air.

Status

Recent collections along the Colorado River have found only small populations of humpback suckers above Lake Powell and even smaller populations above lakes Havasu and Mojave. These impoundments appear to have changed spawning areas used by the fish, causing decreased reproduction and a resulting decline in population.

SHORTNOSE SUCKER

Chasmistes brevirostris



Description

The name, shortnose sucker, aptly describes the peculiar appearance of this fish. The shortnose sucker has a large head with a blunt snout that may have a small hump at the tip. The mouth is oriented forward and has thin lips with few papillae. All other California suckers have mouths that are subterminal (downward oriented) and have large fleshy lips with numerous papillae. The body is cylindrical and attains a length of 20 inches. The body coloration is dark on the back and silvery to white on the belly. Spawning fish may show a reddish tint on the sides.

Distribution

This species is native to the Klamath and Lost River drainages of southern Oregon and northern California. The distribution in California includes Clear Lake Reservoir, and its tributaries, Willow and Boles creeks, Modoc County, the Lost River, Modoc County, and Copco Reservoir, Siskiyou County.

Life History

Little is known regarding the life history of this species. However, the mouth structure and the presence of numerous, densely-tufted gill rakers suggest that these fish feed on plankton that they strain from the water. The shortnose sucker apparently spends most of the year in the open water areas of lakes, reservoirs and rivers, only entering tributary creeks in the spring to spawn.

In California, ripe male and female suckers have been captured in Willow and Boles creeks during the spawning season. Fry have been observed being swept downstream into Clear Lake Reservoir soon after hatching.

Status

The decline of this species is attributed to the construction of irrigation diversions with the subsequent export of water from the rivers, and to the hybridization of the shortnose sucker with other species of suckers. It is also listed as endangered in Oregon.

LOST RIVER SUCKER

Catostomus luxatus



Description

The Lost River sucker is characterized by its large size. It may grow 36 inches and weigh up to 10 pounds. It has a small hump on the snout and moderately thin lips with several rows of papillae on each. The head is long and slender. The coloration is dark on the back and sides with a white or yellow belly.

Distribution

The Lost River sucker is native to the Klamath and Lost River drainages of southern Oregon and northern California. Once, this species was very abundant and widespread throughout the bi-state area. It was an extremely important source of food for the Klamath and Modoc Indians who caught and dried thousands of pounds of these suckers each year. In California, the Lost River sucker is found in Clear Lake Reservoir and its tributary, Willow Creek, Modoc County, and in Copco Reservoir, Siskiyou County.

Life History

The Lost River sucker is able to project its mouth forward, apparently an adaptation for digging in soft lake bottoms. They strain bottom dwelling worms and insects for food. Spawning migrations occur in early April after the water temperature reaches 50 F. They spawn over gravel where the eggs adhere until they hatch. After spawning, the adults leave the tributaries and return to the larger rivers and lakes. In California, these fish spawn in Willow Creek, where sucker fry have been observed being swept downstream after hatching.

Status

Although the Lost River sucker was once very abundant throughout its range, its numbers are now reduced. This is a result of construction of irrigation diversions and flood control structures, which have reduced or eliminated flows in the river systems. Hybridization with other species of suckers poses an additional threat to continued survival. Oregon enacted a bag limit on this fish in 1969 after determining that overharvest was occurring in the Klamath Lake snag fishery.

UNARMORED THREESPINE STICKLEBACK

Gasterosteus aculeatus williamsoni



Description

Sticklebacks get their name from spines along their back. The number of spines varies with the particular species. These spines can be folded down against the body or locked in an upright position for defensive purposes. Other spines are also present in front of the anal fin.

The unarmored threespine stickleback, as the name implies, has three spines on the back and, unlike other sticklebacks, lacks bony, armorlike plates along the sides. Color ranges from green to olive on the back, changing gradually to silver on the sides. During the spawning period females are pinkish on the throat and belly. Males during the same period display a bright scarlet throat and belly, with blue eyes and green fins.

Distribution

Sticklebacks live in slow moving streams and shallow pools con-

taining abundant algae and other aquatic plants. The unarmored stickleback is presently known to exist in the Soledad Canyon portion of the upper Santa Clara River in San Franciquito Canyon, a small tributary below Soledad Canyon, the south fork of the San Jacinto River, and San Antonio Creek. This species could once be found in the Los Angeles, San Gabriel, Santa Ana and Santa Clara rivers, but habitat destruction and hybridization with the armored subspecies of stickleback has resulted in a reduction in range and abundance.

Life History

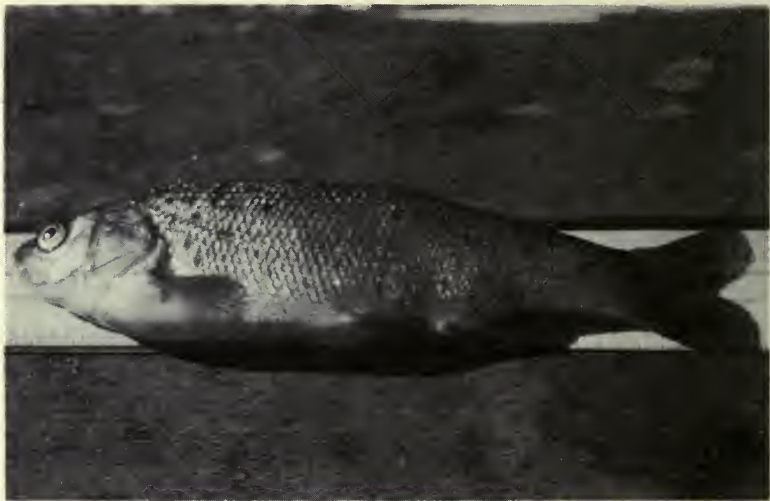
Sticklebacks feed primarily on aquatic plants and organisms living on the river bottom. They can be observed either hovering in place or swimming in a rapid, stop-and-go manner. In the spring, males build nests of algae and display an elaborate courtship behavior. The female will then deposit her eggs in the nest. The male fertilizes the eggs and remains with them, guarding and ventilating the eggs until they hatch.

Status

The unarmored threespine stickleback is threatened by its nearness to a rapidly growing urban area. Development of the Santa Clara River watershed, introduction of exotic species, water pollution, channelization and all the other attendant problems associated with man's use of the drainage pose potential threats to the stickleback. A joint study between the California Department of Fish and Game, the Los Angeles County Museum of Natural History, U.S. Forest Service, and California State Polytechnic University at Pomona has identified the major habitat requirements for this species. Management goals include: protection of the remaining habitat from physical degradation, elimination of introduced exotic species, and restoration of degraded habitat.

OWENS TUI CHUB

Gila bicolor snyderi



Description

Tui chubs are chunky fish with short, rounded fins, large scales and a small mouth. The Owens tui chub can be distinguished from other chubs by its gillraker count of from 10 to 14 and the seven rays of its anal fin. The fish are dusky olive above and whitish to silver on the belly. There are blue and gold reflections along the sides with considerable amounts of golden coloration on the gillcover.

Distribution

Originally found throughout the Owens River drainage, it is now only found in an eight mile section below Crowley Lake dam. Individuals also have been introduced into the Owens Valley Native Fish Sanctuary. They inhabit shallow or sluggish, slowly moving water.

Life History

Little is known about the Owens tui chub, but inferences can be

drawn from other chub populations. Chubs feed on bottom dwelling invertebrates, zooplankton, plant matter and small fishes. Tui chubs congregate in large groups to spawn and do not make nests. The fertilized eggs are probably adhesive and stick to rocks and other bottom rubble.

Status

The major causes of the decline of this species have been the diversion of the Owens River and the introduction of predatory fishes. The Owens chub also is threatened by hybridization with other forms of chubs that have been illegally introduced into Crowley Lake.

OWENS PUPFISH

Cyprinodon radiosus



Description

Pupfish are small, stout-bodied fishes, rarely exceeding two inches in length. The Owens pupfish can be distinguished from other pupfish by the position of the dorsal fin—midway between the head and tail. The first ray of the dorsal fin is also thickened. There are seven rays in the pelvic fins.

Pupfish display sexual differences in color patterns. The breeding males are usually bright blue with a narrow black band on the tail. Females are mottled brown above to whitish below and have dark blotches or vertical bars on the sides. Immature fish resemble females.

Distribution

Pupfish tolerate environmental extremes which would kill most other fish species. They have been found living in water with temperatures from 46 to 110 F, and twice as salty as seawater. They can reside in shallow, slow streams or deep pools, provided sufficient food is available. Today, Owens pupfish are found only at Fish Slough and a small pond near Lone Pine, in the Owens Valley, Inyo County. Formerly, this species was found along the Owens River from Lone Pine to Fish Slough, near Bishop.

Life History

Pupfish are omnivorous, feeding on various foods including aquatic insects, crustaceans, plankton, algae, and even flying insects that fall into the water. This pupfish is credited with controlling the mosquito population in the Owens Valley.

The fish grow to near maximum size by the end of their first summer and can then reproduce. Males are highly territorial during the breeding season, which lasts from April to October. During this period males spend a great deal of time and energy defending up to two square feet of territory. Only females are permitted entry into the territory for spawning. A brief courtship chase precedes the depositing of eggs and fertilization. The small eggs (approximately $\frac{1}{16}$ of an inch) adhere to the aquatic vegetation and hatch within seven to 10 days, depending on water temperature.

Status

In 1964 the Owens pupfish, long thought to be extinct, was rediscovered in a small pond in the Owens Valley. Since that time the pupfish has been transplanted to the Fish Slough Ecological Reserve, a sanctuary created especially for the pupfish. The pupfish is relatively secure there, but the reserve and the number of pupfish are small. The prime cause for decline was the draining of marsh areas for agriculture purposes.

MOHAVE CHUB

Gila bicolor mohavensis



Description

Although similar to the Owens tui chub, this subspecies can be distinguished by eight anal rays and 18 to 29 gillrakers. The coloring is also slightly different, with the Mohave chub being dark olive on the back, changing to bluish or cream-colored on the belly. There are brilliant bluish or gold reflections on the sides, giving a metallic appearance.

Distribution

Originally found in the Mojave River from the junction of the east and west forks downstream to Soda Lake, it is today restricted to Lake Tuendae and springs near Fort Soda (formerly the Zzyzx Mineral Springs Resort) on the west side of Soda Lake near Baker, San Bernardino County. These fish have been successfully transplanted into a few isolated areas in southern California.

Life History

Very little is known about the life history and habitat needs of the Mohave chub. They are probably similar in most respects to the Owens chub. However, the more numerous gillrakers suggest that small organisms make up a greater proportion of their diet.

Status

The introduction of the Arroyo chub, *Gila orcutti*, into the Mojave River system has been the primary cause for decline of the Mohave chub.

Extensive interbreeding has been a major factor in the disappearance of pure populations of the Mohave chub. Fortunately, pure populations still remain in Lake Tuendae. The area around the lake has been acquired by the Bureau of Land Management and efforts are underway to permanently protect the habitat.

RARE SPECIES IN CALIFORNIA

These animals have been declared rare by the California Fish and Game Commission because their continued existence is threatened by one or more conditions. If the answer is "yes" to any of the following questions, the species (or subspecies) under consideration is designated rare:

1. Is it confined to a relatively small and specialized habitat, and is it incapable of adapting to different environmental conditions?
2. Although found in other parts of the world, is it nowhere abundant?
3. Is it so limited that any appreciable reduction in range, numbers or habitat would cause it to become endangered?
4. If current management and protection programs were diminished in any degree, would it become endangered?

Mammals

San Joaquin kit fox
Island fox
Wolverine
California bighorn sheep
Peninsular bighorn sheep
Guadalupe fur seal
Mohave ground squirrel
Fresno kangaroo rat
Stephens kangaroo rat

Birds

California black rail
California yellow-billed
cuckoo

Reptiles

Giant garter snake
Alameda striped racer
Southern rubber boa

Amphibians

Black toad
Siskiyou mountain
salamander
Limestone salamander
Shasta salamander
Kern Canyon slender
salamander
Tehachapi slender
salamander

Fishes

Modoc sucker
Rough sculpin
Cottonball Marsh pupfish

EXTINCT AND EXTIRPATED WILDLIFE OF CALIFORNIA

Extinct

Several California animals are now extinct throughout their range:

Wolf (native subspecies)	Pasadena freshwater shrimp
Long-eared kit fox	Sooty crayfish
Grizzly bear	Xerces blue (butterfly)
(native subspecies)	Sthele satyr (butterfly)
Santa Barbara song sparrow	Strohbeen's parnassius
San Clemente Bewick's wren	(butterfly)
Shoshone pupfish	Atossa fritillary (butterfly)
Clear Lake splittail	Antioch Dunes katydid

Extirpated

The following animals no longer exist in California, but they still exist outside the state:

Columbian sharp-tailed grouse
Jaguar
Woundfin *
Flannelmouth sucker *

* These fishes do not occur in California today. They are assumed to have existed in California waters at one time, although there is no firm evidence of this.

FEDERAL LIST OF ENDANGERED SPECIES

No listing of endangered or rare species is necessarily complete. New species of animals are still discovered from time to time, and known species are added or deleted from the list as we gather more knowledge of the world around us. In addition, both federal and state governments claim an interest in endangered species and each publishes its own list. Because of differences in reporting procedures and jurisdictions (the federal government has jurisdiction over marine mammals, for example), federal and state lists may not agree.

Following is a list of species considered by the federal government to be endangered:

Mammals

- San Joaquin kit fox
- Salt marsh harvest mouse
- Morro Bay kangaroo rat
- Blue whale
- Finback whale
- Gray whale
- Humpback whale
- Right whale
- Sei whale
- Sperm whale

Birds

- California condor
- Southern bald eagle
- American peregrine falcon
- Aleutian Canada goose

- Brown pelican
- California clapper rail
- Light-footed clapper rail
- Yuma clapper rail
- Santa Barbara song sparrow
- California least tern
- San Clemente loggerhead shrike

Reptiles

- Blunt-nosed leopard lizard
- San Francisco garter snake

Amphibians

- Desert slender salamander
- Santa Cruz long-toed salamander

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